

18. Explain micropropagation techniques and their applications in detail.
19. Describe the role of Agrobacterium and plant viral vectors in genetic engineering.
20. Write an essay on transgenic plants and their ecological impact.

NOVEMBER/DECEMBER 2025

**23UBT51 — PLANT BIOTECHNOLOGY**

Time : Three hours

Maximum : 75 marks

**SECTION A — (10 × 2 = 20 marks)**

Answer ALL questions.



1. Define plant biotechnology.
2. Write any two features of plant genome organization.
3. Name two phytohormones and their functions.
4. What is phytochrome?
5. Define micropropagation.
6. What are synthetic seeds?
7. Mention any two applications of Agrobacterium in plant biotechnology.



8. What are Ti plasmids?
9. Write two examples of transgenic plants.
10. What are plant-based vaccines?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Describe conservation of plants using biotechnology.

Or

- (b) Explain the organization of chloroplast genome.

12. (a) Explain the molecular action of auxins.

Or

- (b) Discuss the role of ethylene in fruit ripening.

13. (a) Explain the steps involved in somatic embryogenesis.

Or

- (b) Write a note on haploid plant production.

14. (a) Explain the mechanism of T-DNA transfer in plants.

Or

- (b) Write a short note on nif genes and their importance.

15. (a) Explain the applications of plants as bioreactors.

Or

- (b) Write about genetically modified (GM) foods and their significance.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detailed account on the history and scope of plant biotechnology.
17. Discuss the molecular basis of action of cytokinins and gibberellins.

